Installation and Operation Manual

DSY261RSAE
Digital Clock/Elapsed Time Indicator with Code Blue

american time®

Integrated Solutions

Part # H004423
Rev. 5
October 2011

Electrical Shock Hazard

WARNING: Hazardous voltage in electrical equipment can cause severe personal injury or death. Inspection, installation, and preventive maintenance should only be performed on equipment to which power has been turned off, disconnected and electrically isolated so no accidental contact can be made with energized parts.

Electrostatic Sensitive Devices

CAUTION: This equipment contains electronic devices that are sensitive to static electric charges. To guarantee protection for the circuitry of this unit, it is required that electrostatic handling precautions be observed when installing or repairing this equipment. Any technician or other personnel working on this unit must wear a static grounding wrist strap or similar device to provide protection of sensitive components.

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American Time
140 3rd Street South
PO Box 707
Dassel, MN 55325-0707

Phone: **800-328-8996**
Fax: **800-789-1882**
american-time.com

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IMPORTANT INSTALLATION AND WARRANTY INFORMATION

WARRANTY INFORMATION: American Time (the Manufacturer) provides a limited warranty to the Original Purchaser of this product. The Original Purchaser is the party to whom the Manufacturer issued its Sales Order, generally the Manufacturer's distributor. In order to preserve this warranty, it is important that only persons who have been properly trained and authorized by the Manufacturer service the product.

Other parties involved in the installation of this product may have also provided a warranty, which may be different than that of the Manufacturer. The Manufacturer will only be responsible to the Original Purchaser and only for the Manufacturer's own warranty. For further information regarding the Manufacturer's warranty, contact the Original Purchaser.

OWNER'S MANUAL: The owner's manual does not purport to cover all the details or variations in the equipment described, nor does it provide for every possible contingency to be met in connection with installation, operation and maintenance. All specifications subject to change without notice. Should further information be desired or should particular problems arise which are not covered sufficiently, the matter should be referred to the Installer or Original Purchaser listed below.

INSTALLER INFORMATION

COMPANY: _____ INSTALLER: _____ PHONE: _____

ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____

DATE INSTALLED: _____ INSTALLER'S SIGNATURE: _____

ORIGINAL PURCHASER INFORMATION

COMPANY: _____ PHONE: _____

ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____

PURCHASER'S PURCHASE ORDER NO: _____

DATE PURCHASED: _____

ATS SALES ORDER ACKNOWLEDGMENT NO.: _____

ORIGINAL PURCHASER'S SIGNATURE: _____

NOTE: A copy of the above-completed information may be required by the Manufacturer for authorization of Warranty services.

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Specifications

GENERAL

Weight: ..... Digital Clock/Timer ..... 4.27 lb.
..... ATSTCS Control Station ..... 0.27 lb.
External Dimensions: ..... Digital Clock/Timer ..... 5.375" X 12.375" X 3"
..... ATSTCS Control Station ..... 4.63" X 4.56" X 1.25"

SPECIFICATIONS

ELECTRICAL

Power Requirements (Digital Clock/Timer only):
Line Voltage: 120/240vac 50/60Hz
Note: Voltage and frequency set by Factory on order
Battery: ..... 9vdc Rechargeable Ni-Cad Battery
Battery Charger: ..... 9vdc Direct Current source with
..... current limiting resistor.
Maximum Current (Digital Clock/Timer only): ..... 56 mA (26mA for 240vac version)
Memory Retention on Loss of Line Voltage: ..... 4 hours with fully charged battery
Distance of ATSTCS from Digital Clock/Timer: ..... 30-ft maximum with 22 AWG stranded wire
..... with minimum $^{1}/_{32}$" thick insulation
Clock Circuits: ..... 3.0mA. max. @ 24vac/120vac
Code Blue Circuits: ..... 3.0mA. max. @ 12vac/vdc-30vac/vdc

ENVIRONMENTAL

Ambient Operating Range: ..... 10°C to 49°C (50°F to 120°F)
Recommended Storage Temperature: ..... -30°C to 45°C (-22°F to 113°F)
..... for six months maximum
Humidity: ..... 85 %RH at 30°C (86°F)

OPERATION

Modes Available: ..... 12 hour or 24-hour non-system clock
12 hour secondary clock
Incrementing timer with programmable preset value and start/stop capability
Decrementing timer with programmable preset value and start/stop capability
Code Blue incrementing timer

Accuracy: ..... with line voltage applied - line synchronous
with line voltage not applied - ± 0.005 % at 25°C

Indications: ..... Digital Clock/Timer — hours and minutes - 2.3", bright red, seven segment LED's
hours and minutes are separated by a colon seconds - 1.0", bright red, seven segment LED's
..... ATSTCS Control Station — 2 second audible alarm

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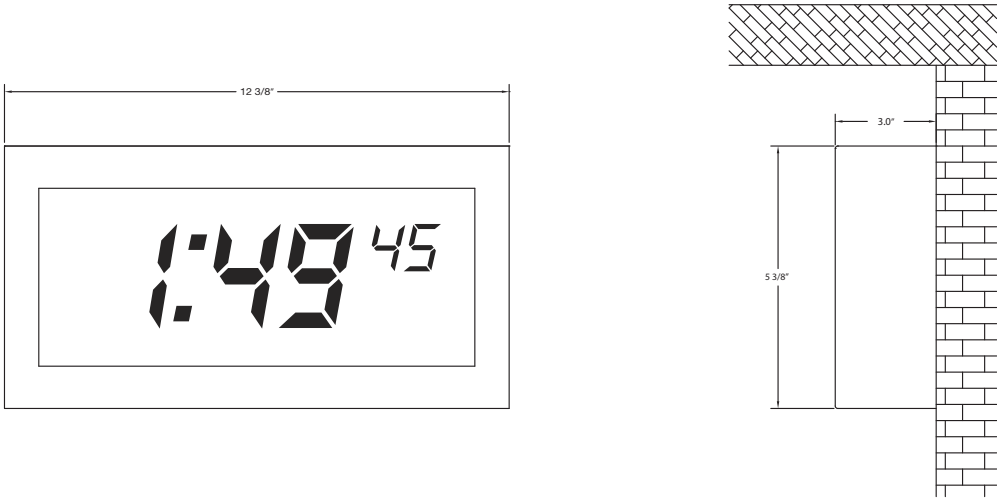
Clock/Timer Description

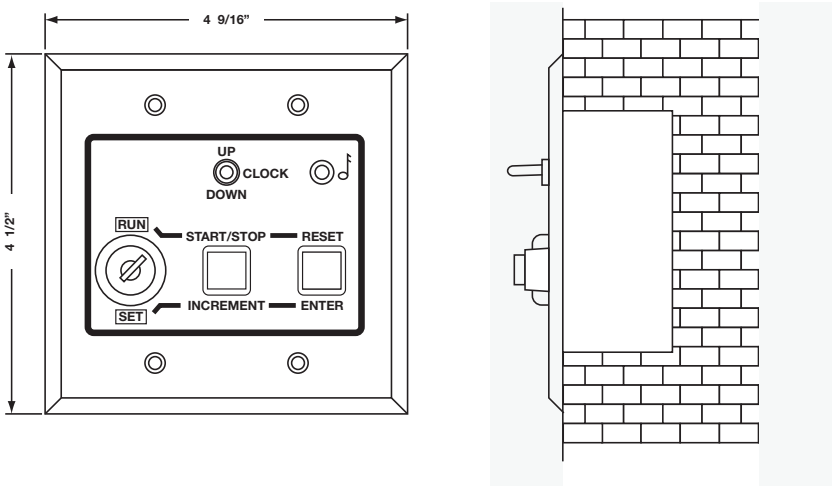
The DSY261RSAE Digital Clock/Timer is a six-digit multi-function clock/timer. The DSY261RSAE functions as a 12-hour or 24 hour stand-alone clock. The DSY261RSAE can also be wired as a 12-hour secondary clock.

When combined with the ATSTCS Control Station, the DSY261RSAE can also be used as an up or down counting elapsed timer. The elapsed timers can be started, stopped, resumed, and reset. Both timer modes have a programmable preset value. When the timer reaches the preset value, a two-second audible alarm sounds from the ATSTCS. The DSY261RSAE contains a Code Blue up counting elapsed timer that overrides all other modes of operation.

DSY261RSAE Digital Clock/Timer



ATSTCS Control Station



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Control Station Switch Functions

Run/Set Switch -

Set Position: This position is used to set a preset up or down counting time (Timer). It is also used to reset the Code Blue timer.

This position is not used for setting time. The controller will allow you to enter in a 12/24 hour mode and set a time. However the time will be controlled and updated by the SiteSync IQ system controller.

Run Position: This position is used to permit Clock/Timer to operate.

Up/Clock/Down Switch -

Up Position: This position is used to choose up counting elapsed timer mode.

Clock Position: This position is used to choose clock mode.

Down Position: This position is used to choose down counting elapsed timer mode.

Start/Stop/Increment Switch -

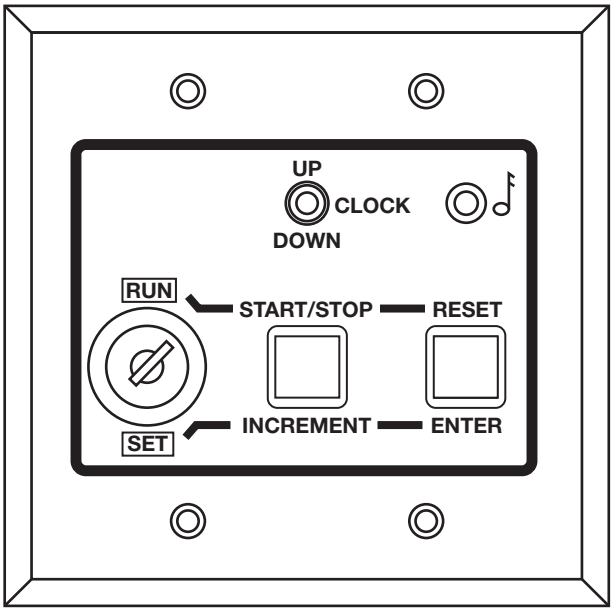
This button is used to start, stop, and resume timer count, when Run/Set Switch is in the Run position (Code Blue timer can only be stopped).

This button is also used to increment/advance the number value being set when the Run/Set Switch is in Set position.

Reset/Enter Switch -

This button is used to used to return a timer (excluding the Code Blue timer) to the beginning of its count, when the Run/Set Switch is in Run position.

This button can also be used to select a field (i.e. format, minute digits, hour digits) when the Run/Set Switch is in Set position.



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Clock/Timer Installation

The Digital Clock/Timer can be mounted to a single or double gang box. To install the Digital Clock/Timer, follow the instructions below. Ensure that installation conforms to the National Electrical Code and local wiring codes.

CAUTION: Electric Shock Hazard! Ensure that **NO** electrical power is present on any wire before installation.

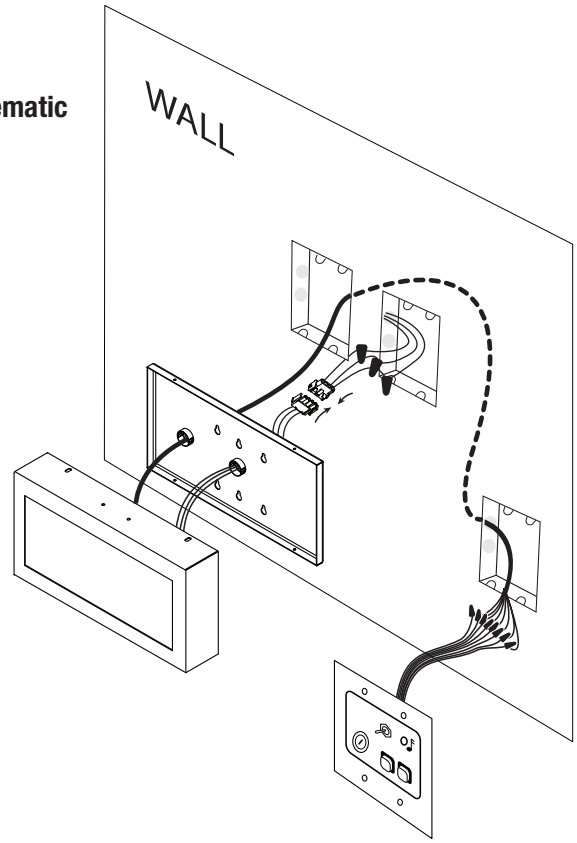
1. Remove the four sheet metal screws that hold the cover assembly and back plate assembly together. Be sure to keep the sheet metal screw.
2. Make electrical connections (hot, neutral, ground wires) to non-switched electrical circuit wiring using UL approved wire nuts. Route field wiring away from sharp projections, corners and internal components. for Molex, white to negative/common, black to positive/hot and green to ground.
3. Pull the eight wires from the control station through the second bushing of the back plate assembly. The 120vac wires and control station wires should not be run through the same bushing.
4. Join the two Molex connectors together, placing excess wiring and Molex connectors into the gang box.
5. Mount the back plate assembly to the single or double gang box.
6. Connect field wiring interconnecting the Clock/Timer with the ATSTCS Control Station to the appropriate terminals of the Digital Clock/Timer See wiring detail on next page.

Chassis ground **MUST** be connected to conduit/Earth ground to provide proper protection from electric shock.

CAUTION: Electric Shock Hazard! When making installation, route field wiring away from sharp projections, corners, and internal components.

7. Re-attach the cover assembly to the back plate assembly using the sheet metal screws removed in step 1.
8. Apply power to the circuit and confirm correct operation.

Installation Schematic



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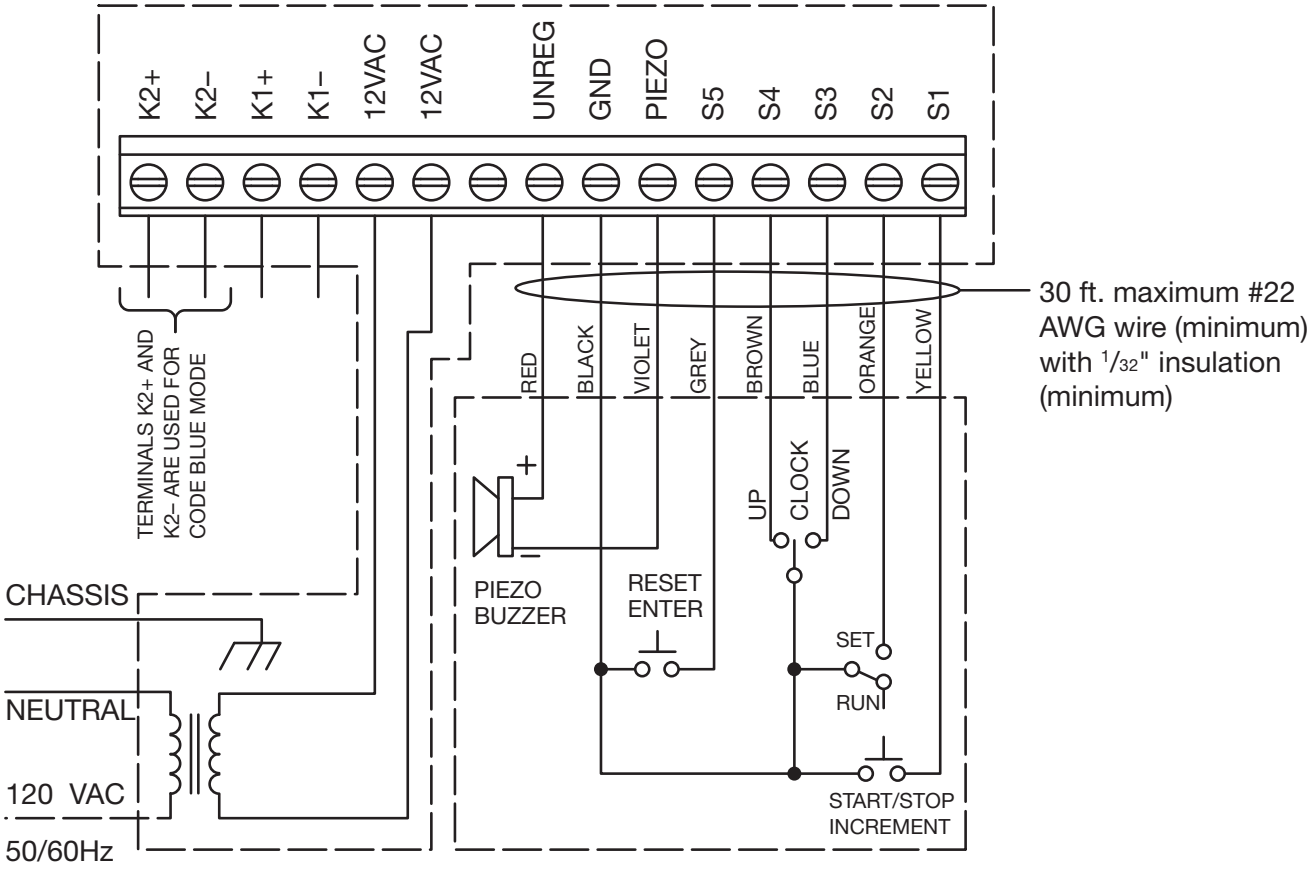
Control Station Installation

The ATSTCS Control Station can be mounted to a double gang box, 1½ inch deep or deeper. The Control Station can be mounted up to 30 feet away from the Digital Clock/Timer. The recommended minimum interconnecting field wire size is #22.8 AWG stranded wire. **Ensure that installation conforms to the National Electrical Code and local wiring codes.**

CAUTION: Electric Shock Hazard! Ensure that no electrical power is present on any wire before installation.

1. Pull interconnecting field wires into the double gang box.
2. Connect field wiring interconnecting the ATSTCS Control Station with the Digital Clock/Timer to the appropriate wires of the Control Station. See wiring detail below.
3. Mount the Control Station to the double gang box using the machine screws provided.



Typical wiring for the Digital Clock/Timer with Control Station

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Powering Up

Before applying power, place the SET/RUN switch to the RUN position and the UP/DOWN/CLOCK switch to the CLOCK position.

Apply power to the unit. The displays may rotate during the power on self test and then a version number will appear for a few seconds. The DSY261RSK will display 1:00:00 and begin keeping time. If the backup battery is not depleted, the self test will be bypassed and the DSY261RSAE may display a time other than 1:00:00.

Setting Time

With the UP/DOWN/CLOCK switch still in the CLOCK position:

Set the SET/RUN switch to the SET position.

The clock will now prompt for a 12 or 24 hour format. Press the INCREMENT switch until the desired format is shown and then press ENTER.

The clock will now prompt for time. The hours digits will be flashing. Press the INCREMENT switch until the desired hour is shown and then press ENTER. The minutes digits will be flashing. Press the INCREMENT switch until the until the desired minutes are shown and then press ENTER. Press the INCREMENT switch again to set the desired seconds and then press ENTER.

The display will flash **donE**. Press the SET/RUN switch back to RUN when you want timekeeping to begin at the time you entered.

The clock will now keep time as a free running clock or as a slave if connected to a master clock and in 12 hour format.

Setting the Up Counter Preset Time

If you want to use the alarm and hold feature with the UP timer, you will need to set a preset time for the UP timer.

Set the UP/DOWN/CLOCK switch to the UP position.

Set the SET/RUN switch to the SET position. The hours digits will be flashing.

Using the INCREMENT switch, set the desired hours for the preset time, then press ENTER. The minutes digits will now be flashing.

Set the desired minutes the same way, then press ENTER. The seconds digits will then be flashing.

Set the desired seconds the same way, then press ENTER. The display will then flash **donE**.

Set the SET/RUN switch back to the RUN position.

Note: A preset of 00:00:00 allows the digital clock/timer to be used as a standard elapsed timer with a maximum elapsed time of 30:59:59.

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Up Counter Elapsed Time Operation

Once the desired preset value has been set, the unit is now ready to function as an UP count elapsed timer.

1. Be sure the SET/RUN switch is in the RUN position.
2. Set the UP/DOWN/CLOCK switch to the UP position.
3. Press RESET to display **00:00:00**.
4. Press the START/STOP switch to begin counting elapsed time.
5. Press the START/STOP switch again to stop and hold the count.
6. Press the START/STOP switch again to resume elapsed time counting.
7. To start over press RESET to display **00:00:00** again.

When the timer reaches the preset value, it will sound the audible alarm for 2 seconds and hold the time count.

During an UP count elapsed time operation, you can display any of the other time functions using the UP/DOWN/CLOCK switch as desired.

Setting the Down Counter Preset Time

If you are using the clock as a down counting elapsed timer, you will need to set a preset time to count down from. In this mode, the alarm and hold will occur at 00:00:00.

1. Set the UP/DOWN/CLOCK switch to the DOWN position.
2. Set the SET/RUN switch to the SET position. The hours digits will be flashing.
3. Using the INCREMENT switch, set the desired hours for the preset time, then press ENTER. The minutes digits will now be flashing.
4. Using the INCREMENT switch, set the desired minutes for the preset time, then press ENTER. The seconds digits will then be flashing.
5. Using the INCREMENT switch, set the desired seconds for the preset time, then press ENTER. The display will then flash **donE**.
6. Set the SET/RUN switch back to the RUN position.

Down Counter Elapsed Time Operation

Once the desired preset value has been set, the unit is now ready to function as a DOWN count elapsed timer.

1. Set the UP/DOWN/CLOCK switch to the DOWN position.
2. Be sure the SET/RUN switch is in the RUN position.
3. Press RESET to display the preset value which was set previously.
4. Press the START/STOP switch to begin counting down elapsed time.
5. Press the START/STOP switch again to stop and hold the count.
6. Press the START/STOP switch again to resume elapsed time counting.
7. To start over press RESET to display the preset value again.

When the timer reaches 00:00:00, the timer will stop counting and the audible alarm will sound for 2 seconds.

During a DOWN count elapsed time operation, you can display any of the other time functions using the UP/DOWN/CLOCK switch as desired

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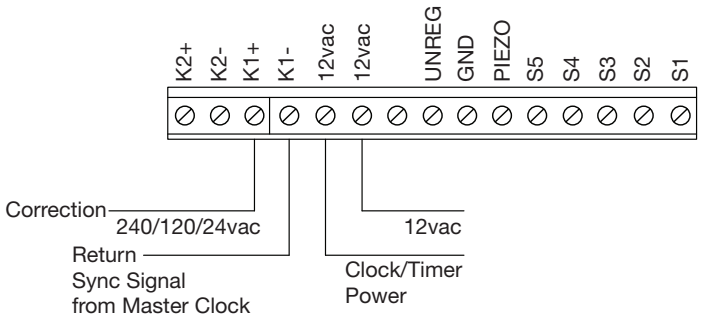
Free Running Clock Operation

The Digital Clock/Timer can be used as a free running clock. No additional connections are required. It will run as a line synchronous clock once time has been set.

Synchronous Secondary Clock Operation

The Digital Clock/Timer can be used as a correctable synchronous secondary clock. Simply connect it to a 3- wire or 4-wire, synchronous master clock system, and set the rotary switch on the circuit board to 2 or 5. The location of the rotary switch is shown below. For secondary clock wiring see diagrams in Appendix 1 and Appendix 2. It will run free between corrections synchronized to the AC power line. The Digital Clock/Timer should not be used in the 24 hour format mode if it is connected to a 3- wire or 4-wire synchronous system, since the 12 hour corrections cannot distinguish AM and PM.



Setting the Secondary Clock Mode Switch

A small rotary switch on the Digital Clock/Timer circuit board is used to select the secondary clock setting. The numbers on this switch correspond to the correction settings listed below. For example, if your master clock supports a Faraday 2310-12 secondary clock, you will need to set the Digital Clock/Timer to Correction Setting 5 by turning the switch to position 5. The location of the rotary switch is shown below. For secondary clock wiring see diagrams in Appendix 1 and Appendix 2

CORRECTION SETTING 2

EMULATES THESE CLOCKS:

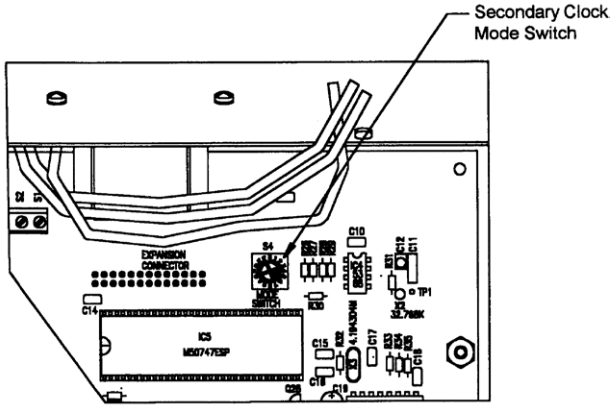
Cincinnati	D10
Faraday	2370, 2380
IBM	77 Series
Simplex	77 Series, 93-9,91-1, 941-9,943-9
Stromberg	3000
Lathem	Type SS Wall Clocks

CORRECTION SETTING 5

EMULATES THESE CLOCKS:

Faraday	2310 Series - Hourly correct only
Honeywell	ST402A

Note: Only correction settings 2 & 5 will emulate secondary clocks



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Description

The Code Blue feature provides an override which forces the clock into a special count up elapsed time mode. No matter which of the three normal functions is being displayed, Code Blue input will cause the unit to begin counting elapsed time from 00:00:00. All other functions of the unit continue to operate in the background during a Code Blue.

Operation

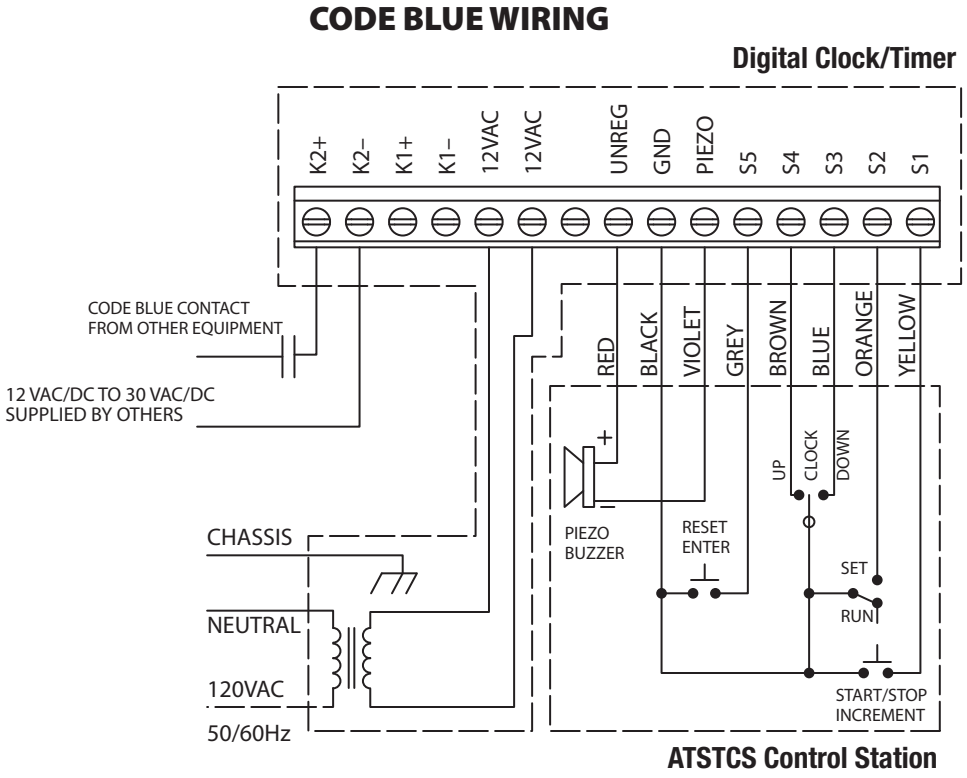
A Code Blue is initiated by applying a signal ranging from 12vac/vdc to 30vac/vdc to the K2+ and K2- terminals. See the sample wiring diagram below for more detail.

The Code Blue timer is the highest priority function of the clock/timer while in the run mode. No matter which of the 3 normal functions is being displayed, the Code Blue input will cause the clock to begin counting up elapsed time from 00:00:00.

The Code Blue timer can be stopped and the time held for viewing by pressing the START/STOP button on the ATSTCS switch panel. The Code Blue timer cannot be restarted from the switch panel.

To reset the clock back to normal operation, the RUN/SET switch must be set to the SET position momentarily and then returned to the RUN position.

All other functions of the clock continue to operate in the background during a Code Blue. Time of day and time corrections from the SiteSync IQ system controller will not be affected. The standard count up timer and the count down timer will continue as well. However, if one of these timers is switched on for display when a Code Blue occurs, that particular timer will be reset when the clock is reset back to normal operation.



Digital Clock/Timer Code Blue wiring using Control Station.
The Control Station is connected as normal.

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Important Considerations

The ATSTCS **must be** in the RUN mode for Code Blue to override.

The 12vac/vdc to 30vac/vdc signal that starts the Code Blue timer originates from equipment external to the Digital Clock/Timer. The external equipment usually employs a switch device (i.e., a relay contact) to apply this signal. That switching device is often referred to as the Code Blue contact.

The Code Blue contact does not have to open before resetting the Digital Clock/Timer back to normal operation, but must be opened before another Code Blue can occur. The transition from no voltage to applied voltage (across the K2+ and K2- terminals) initiates a Code Blue.

If the Code Blue contact opens and closes again before the Digital Clock/Timer is reset back to normal operation, the Code Blue timer will start over from 00:00:00.

If a power failure occurs during a Code Blue and the back up battery is in place, and the Code Blue contact is still closed when the power returns, the Code Blue timer will start over from 00:00:00. If the Code Blue contact is open when the power returns, the Code Blue timer will continue counting the elapsed time including the time while the power was off.

If a power failure occurs during a Code Blue after the Code Blue timer has been stopped for viewing, and the Code Blue contact is still closed when the power returns, the Code Blue timer will start over from 00:00:00. If the Code Blue contact is open when the power returns, the elapsed time where the Code Blue timer was stopped prior to the power failure will be displayed.

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Cleaning

Occasionally the Digital Clock/Timer and the Control Station will need to be cleaned. Dampen a soft, nonabrasive cloth with alcohol or a mild detergent. **Do not use abrasives or solvents!** Gently wipe the exteriors of the units with the cloth.

Battery Maintenance

The Digital Clock/Timer uses a single 9vdc Ni-Cad battery rechargeable via an on board charger. This battery retains the time of day and timer counts when 240vac power is lost. If each in a series of 120vac power losses occur for a similar length of time, the battery can be conditioned to provide only that amount of backup capacity. This phenomenon is called “memory” effect. The Ni-Cad battery’s “memory” can be erased by deeply discharging the battery and recharging it.

It is recommended that the operator remove 120vac power from the Digital Clock/Timer once per year for at least four hours.

WARNING

Replace the battery only with a 9v Ni-Cad battery. Do not replace with a regular (primary) 9v transistor battery (i.e., zinc carbon battery, alkaline battery)! An incompatible battery may leak or explode, causing equipment damage and/or personal injury! If battery must be replaced, contact American Time at 800-328-8996.

System Maintenance

The Digital Clock/Timer and ATSTCS Control Station have been manufactured for years of dependable, reliable use. However, to assure the reliability of this product, it is recommended that the Digital Clock/Timer be tested at least every six (6) months with the Control Station and Code Blue contact for operation in accordance with wiring configurations used.

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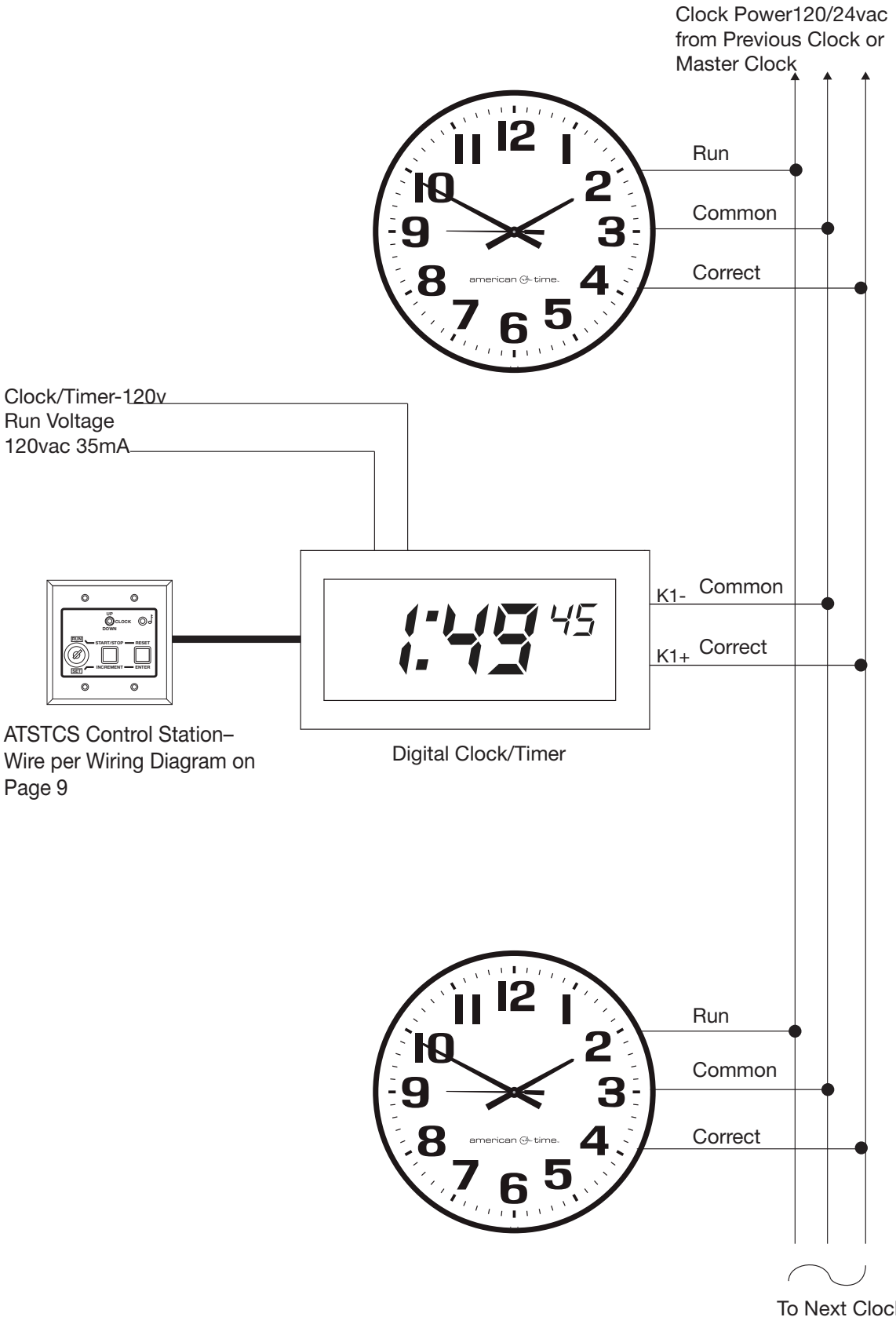
Appendix 1

Wiring Diagram for Synchronous Secondary Clock Operation For use with 3 Wire Clocks



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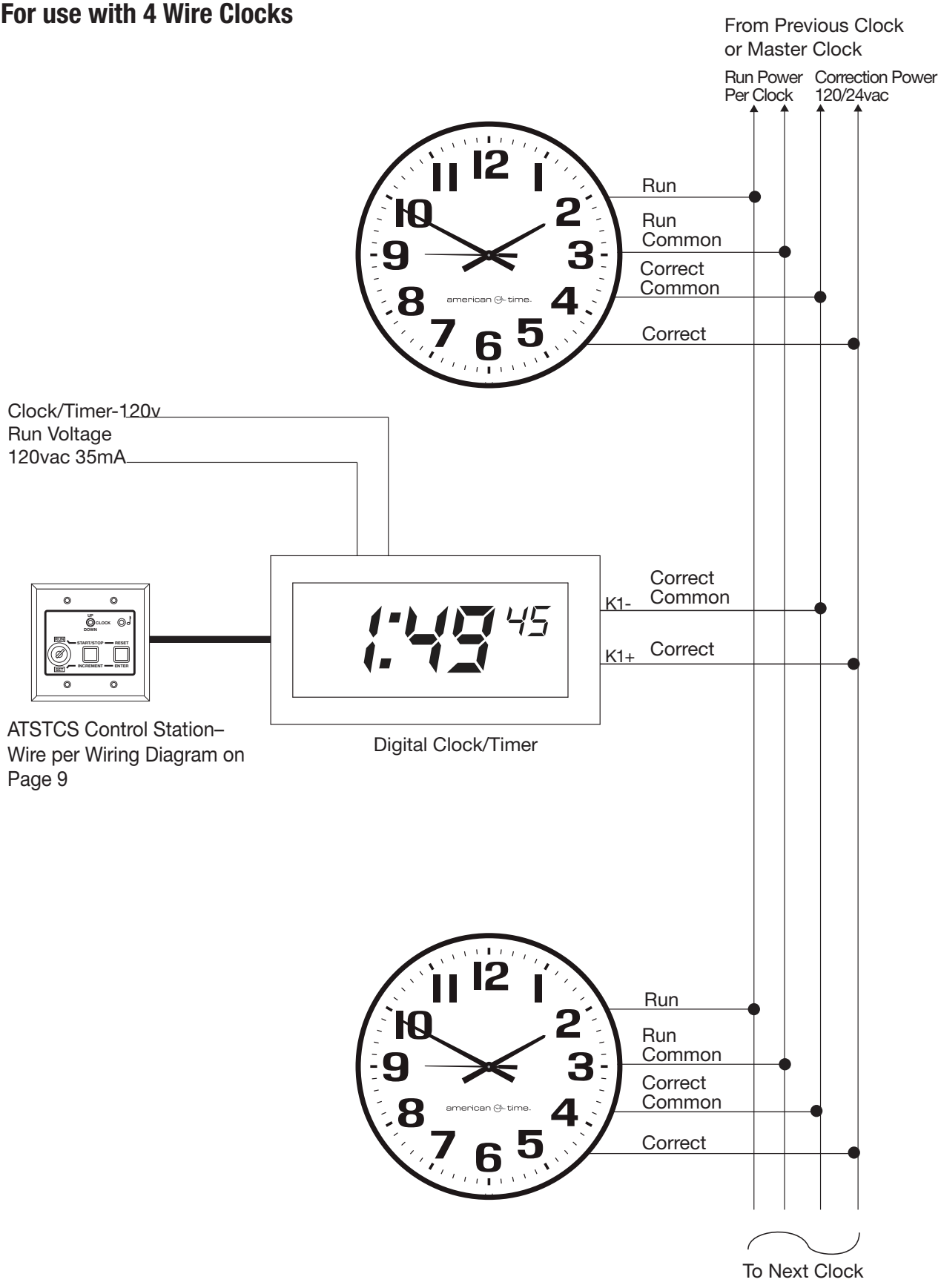
Appendix 2

Wiring Diagram for Synchronous Secondary Clock Operation For use with 4 Wire Clocks



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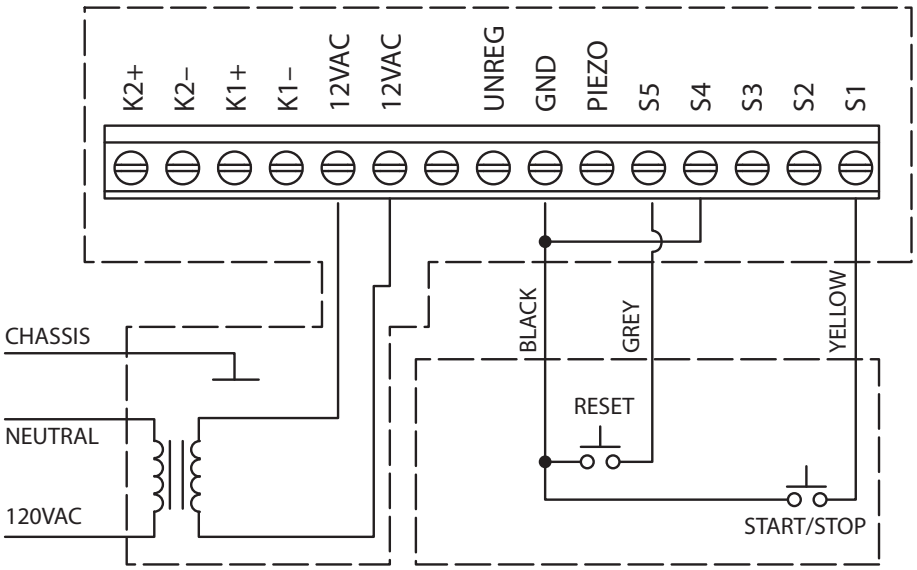
Appendix 3

Using the Digital Clock/Timer as a Count Up Elapsed Timer Only

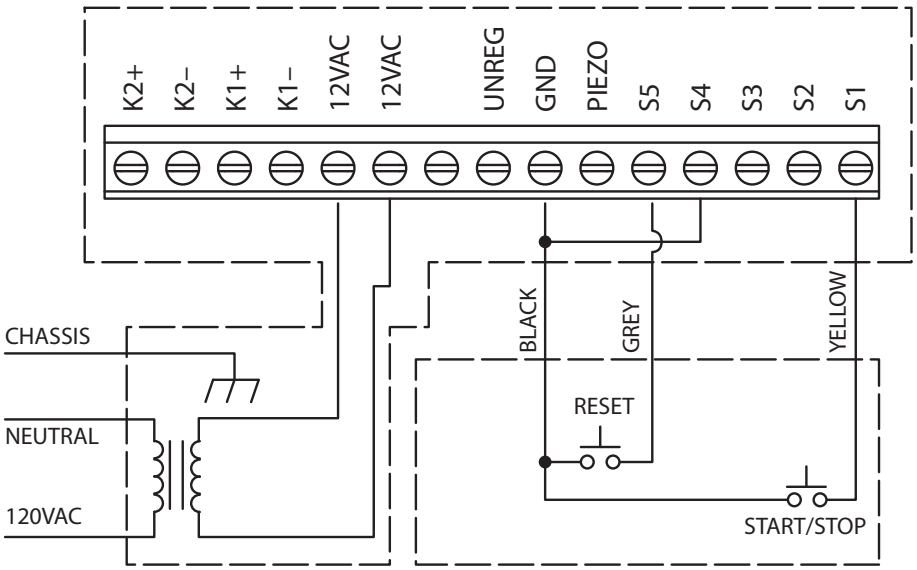
For applications where the user does not want to use the clock and down count functions, the terminal block can be wired as shown below. When wired in this manner, the preset time cannot be changed and the alarm will not sound.



Appendix 4

Using the Digital Clock/Timer as a Count Down Elapsed Timer Only

For applications where the user does not want to use the clock and up count functions, the terminal block can be wired as shown below. When wired in this manner, the preset time cannot be changed and the alarm will not sound.



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Appendix 5

Operator's Flowchart

To Set Time
UP/CLOCK/DOWN switch in **CLOCK** position
SET/RUN switch in **SET** position
Clock display 24Hr or 12Hr
Push **INCREMENT** to change
Push **ENTER**
Clock displays flashing hours digits
Push **INCREMENT** to change
Push **ENTER**
Clock displays flashing minutes digits
Push **INCREMENT** to change
Push **ENTER**
Clock displays flashing seconds digits
Push **INCREMENT** to change
Push **ENTER**
Display shows **DONE**
Place SET/RUN switch in **RUN** position

To Use as a Clock
Place SET/RUN switch in **RUN** position
UP/CLOCK/DOWN switch in **CLOCK** position

Code Blue Operation

SET/RUN switch **MUST** be in RUN position

To stop and hold code blue time for viewing, press **START/STOP**

To Reset Clock/Timer to Normal Operation

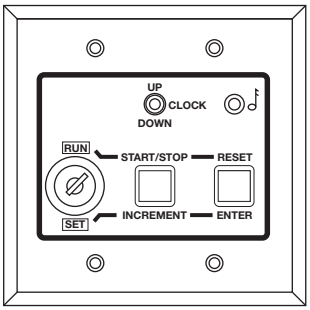
Place SET/RUN switch momentarily in **SET** position and return switch to **RUN** position

To Set UP Counter Preset
UP/CLOCK/DOWN switch in **UP** position
SET/RUN switch in **SET** position
Clock displays flashing hours digits
Push **INCREMENT** to change
Push **ENTER**
Clock displays flashing minutes digits
Push **INCREMENT** to change
Push **ENTER**
Clock displays flashing seconds digits
Push **INCREMENT** to change
Push **ENTER**
Display shows **DONE**
Place SET/RUN switch in **RUN** position

To Use UP Counter
UP/CLOCK/DOWN switch in **UP** position
Place SET/RUN switch in **RUN** position
Place **RESET** to display 00:00:00
Place **START/STOP** to Begin
Place **START/STOP** to Hold
Place **START/STOP** to begin again
Alarm will sound when preset time is reached
Press **RESET** to reset counter

To Set DOWN Counter Preset
UP/CLOCK/DOWN switch in **DOWN** position
SET/RUN switch in **SET** position
Clock displays flashing hours digits
Push **INCREMENT** to change
Push **ENTER**
Clock displays flashing minutes digits
Push **INCREMENT** to change
Push **ENTER**
Clock displays flashing seconds digits
Push **INCREMENT** to change
Push **ENTER**
Display shows **DONE**
Place SET/RUN switch in **RUN** position

To Use DOWN Counter
UP/CLOCK/DOWN switch in **DOWN** position
Place SET/RUN switch in **RUN** position
Place **RESET** to display preset time
Place **START/STOP** to Begin
Place **START/STOP** to Hold
Place **START/STOP** to begin again
Alarm will sound 00:00:00 is reached
Press **RESET** to reset counter



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